

Amendment Under 37 C.F.R. § 1.111  
U.S. Application No.: 10/694,772

Atty Dkt No.: 71450.00009

### REMARKS

Claims 1-5 and 18 are presently pending in the application. Claims 6-17 have been withdrawn by the Examiner as being directed to a non-elected invention, since Claims 1-5 and 18 are considered constructively elected for prosecution on the merits by the Examiner. Claims 6-17 have been canceled without prejudice or disclaimer. Reconsideration and allowance of all claims is respectfully requested in view of the following remarks.

Applicants thank the Examiner for a second copy of the initialed PTO/SB/08 Form acknowledging consideration of the references in the Information Disclosure Statement filed April 16, 2004.

However, the Applicants await receipt of the initialed Form PTO/SB/08 that was filed on October 29, 2003, from the Examiner.

#### Claim Rejections Due to Informalities

The Examiner has finally rejected Claim 1 under 35 U.S.C. § 112, first paragraph, as not being enabled. Further, the Examiner has finally rejected Claims 1-5 under 35 U.S.C. § 112, second paragraph, as being indefinite.

The Applicants respectfully point out to the Examiner that the base layer 5 is formed on one side of the conductor layer 6, and that the cover layer 7 is formed on another side of the conductor layer 6, as described on page 11, lines 6-13, and page 13, lines 15-17, of the present specification, and as shown in Figs. 5(a)-(d). Therefore, the Examiner's position that the claims are not enabled or are indefinite, should be withdrawn.

However, since the claims have been amended to further define the shape of the flexible wired circuit board, this rejection should now be moot.

#### Claim Rejections under 35 U.S.C. § 103

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Claims 1-2 stand finally rejected under 35 U.S.C. §103(a) as being unpatentable over Sommer (USP 3,966,578). Claim 1 stands finally rejected under 35 U.S.C. §103(a) as being unpatentable over Kato et al. (USP 5,823,680). Claim 1 stands finally rejected under 35 U.S.C. §103(a) as being unpatentable over Heine et al. (USP 2003/0152130). Claims 1 and 3-5 stand finally rejected under 35 U.S.C. §103(a) as being unpatentable over Schmermund (USP 6,341,892). Claim 1 stand finally rejected under 35 U.S.C. §103(a) as being unpatentable over JP 07-296,786A (hereafter JP '786) in view of Potega. Finally, Claim 18 stands finally rejected under 35 U.S.C. §103(a) as being unpatentable over Kiec et al. in view of Sommer and Wienand.

For the following reasons, the prior art rejections are respectfully traversed.

The Applicants respectfully submit that neither Sommer, Kato et al., Heine et al., Schmermund, JP 07296786 (hereafter JP '786), nor Potega, teaches or suggests a flexible wired circuit board for temperature measurement including a conductor layer; and a base insulating layer formed in a generally rectangular, flat, strip-shape, and having generally rectangular, flat, widened end portions, the base insulating layer being formed on one side of the conductor layer; wherein the conductor layer is formed from a metal foil having a proportional relation between temperature and specific electric resistance; and wherein the conductor layer includes a temperature detecting portion formed when the conductor layer is formed as a wiring portion and arranged in a predetermined pattern on the base insulating layer, and wherein the temperature detecting portion is formed on the base insulating layer at the generally rectangular, flat, widened end portions, as recited in amended Claim 1, and as substantially recited in amended Claim 18.

Rather, all the prior art references are silent with respect to a conductor layer and a

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base insulating layer formed thereon, the base insulating layer being formed in the recited shape, wherein the conductor layer has a temperature detecting portion, and wherein the temperature detecting portion is formed on the base insulating layer at the generally rectangular, flat, widened end portions.

In particular, Sommer discloses a circular thin-film thermistor made of a circular polyimide film 11, rather than a base insulating layer formed in a generally rectangular, flat, strip-shape, and having generally rectangular, flat, widened end portions, wherein the temperature detecting portion is formed on the base insulating layer at the generally rectangular, flat, widened end portions.

Further, with respect to Claim 18, no cover insulating layer 7 is formed on strips 17 or wires 21 in Sommer. However, in the present invention, a cover insulating layer 7 is formed on the conductor layer 6 and base insulating layer 5.

Thus, Claims 1 and 18 are patentably distinguishable over Sommer.

With respect to Kato et al., this reference discloses only a rectangular temperature sensor formed of a ceramic substrate 1, the substrate 1 which is not in a shape of the claimed wired circuit board having in particular, generally rectangular, flat, widened end-portions, wherein the temperature detecting portion is formed on the base insulating layer at the generally rectangular, flat, widened end portions.

Thus, Claims 1 and 18 are patentably distinguishable over Kato et al.

Also in contrast to the present invention, Heine et al. disclose a square temperature measuring system having a square substrate 1 which is not in a shape of the claimed flexible wired circuit board having a base insulating layer formed in a generally rectangular, flat, strip-shape, and having generally rectangular, flat, widened end portions, wherein the

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temperature detecting portion is formed on the base insulating layer at the generally rectangular, flat, widened end portions.

In Heine et al, there are two resistor layers - a temperature measuring resistor 3 provided as strip-like printed conductors, and a resistor layer as a control element 2 - which are applied to a substrate 1 in a common layer as a metal plating using known methods, such as vapor deposition. However, Heine et al. fails to disclose that the common layer 2 is a (single) conductor layer formed as a wiring portion as in the flexible wired circuit board of the present invention.

Thus, Claims 1 and 18 are patentably distinguishable over Heine et al.

Still further, in contrast to the present invention, Schmermund discloses a thermometer probe, which does not have a substrate 17 formed in a shape of the claimed flexible wired circuit board having generally rectangular, flat, widened end portions, wherein the temperature detecting portion is formed on the base insulating layer at the generally rectangular, flat, widened end portions.

Further, Schmermund fails to teach or suggest the cover insulating layer of the present invention. The housing 26 of the Schmermund device, in which the probe is disposed, is not equivalent to that of the cover insulating layer of the present invention.

Thus, Claims 1 and 18 are patentably distinguishable over Schmermund.

Finally, JP '786 discloses a flexible printed board on which is provided various elements of a battery. Neither JP '786 nor Potega teaches or suggests the claimed shape of a flexible wired circuit board, where the base insulating layer is formed in a generally rectangular, flat, strip-shape, having generally rectangular, flat, widened end portions, and wherein the temperature detecting portion is formed on the base insulating layer at the

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generally rectangular, flat, widened end portions.

Further, Potega discloses in col. 14, lines 57-65, a cylindrical hybrid temperature sensor using a paper backing on which one or more layers of aluminum foil is laminated. Conductive traces with silk-screened thermally-resistive ink therebetween are formed on the aluminized paper in Potega, but the conductive traces (with ink therebetween) are not formed from the aluminum foil as a wiring portion, as in the flexible wired circuit board of the present invention.

Further, even if JP '786 and Potega were combined, the resulting combination would not meet the claimed features of the present invention. A combination of the JP '786 and Potega references would result in only resistive inked panels being provided in the JP '786 battery.

The Examiner is reminded that the fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Further, although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the references to do so." 916 F.2d at 682, 16 USPQ2d at 1432. A statement that modifications of the prior art to meet the claimed invention would have been "well within the ordinary skill of the art at the time the claimed invention was made" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). See also *In*

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*re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000). See MPEP 2143.01.

Thus, the Examiner has not proven a *prima facie* case of obviousness of Claims 1 and 18 over either the individual or the combination of the JP '786 and Potega references, and is using impermissible hindsight in combining the references to achieve the claimed features of the present invention.

Accordingly, Claims 1 and 18 are not obvious over either the individual or the combination of the Sommer, Kato et al., Heine et al., Schmermund, JP '786 and Potega references, and the rejection of Claim 1 under 35 U.S.C. §103 should be withdrawn.

Further, since Claims 2-5 depend from Claim 1, they are also patentably distinguishable over either the individual or the combination of the applied prior art references for at least the reasons cited above with respect to Claim 1.

Further with respect to Claim 18, the Applicants respectfully submit that neither Kiec et al., Sommer, nor Wienand, teaches or suggests a flexible wired circuit board for temperature measurement including a conductor layer formed from a stainless foil; a base insulating layer formed from a polyimide film and formed in a generally rectangular, flat, strip-shape, and having generally rectangular, flat, widened end portions, the base insulating layer being formed on one side of the conductor layer; a cover insulating layer formed from a polyimide film, and formed on another side of the conductor layer; wherein the conductor layer including a main wiring portion for wiring and a sensor-wiring portion for detecting temperature, is formed in one piece in a form of a predetermined pattern; and wherein the temperature detecting portion is formed on the base insulating layer at the generally rectangular, flat, widened end portions.

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Rather, none of the applied prior art references teaches or suggests a conductor layer and a base insulating layer formed on one side of the conductor layer, the base insulating layer being formed in a generally rectangular, flat, strip-shape, and having generally rectangular, flat, widened end portions, wherein the conductor layer has a temperature detecting portion, and wherein the temperature detecting portion is formed on the base insulating layer at the generally rectangular, flat, widened end portions.

Specifically, Kiec et al. disclose a serpentine shaped thin film material, Sommer discloses a circular thin film thermistor, and Wienand discloses a circular-shaped temperature sensor.

Further, there is no motivation to combine the Kiec et al. reference with either Sommer or Wienand, since all the prior art references are directed to specific types of thin film temperature detection devices (i.e., for mechanically oscillating systems such as in Wienand, or electrical connectors as in Kiec et al, and for weather balloons as in Sommer), and are physically disparate. Further, even if combined, the disparate references would not result in the claimed features of the present invention.

The Examiner is reminded that even when the level of skill in the art is high, the Examiner must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination. In other words, the Examiner must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious". *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998).

Thus, the Examiner has not proven a *prima facie* case of obviousness of Claim 18 over either the individual or the combination of the Kiec et al., Sommer, and Wienand

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references, and is using impermissible hindsight in combining the references to achieve the claimed features of the present invention.

Accordingly, Claim 18 is not obvious over either the individual or the combination of the Kiec et al., Sommer, and Wienand references, and the rejection of Claim 18 under 35 U.S.C. §103 should be withdrawn.

If the Examiner believes that there is any issue which could be resolved by a telephone or personal interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

Applicants hereby petition for any extension of time which may be required to maintain the pendency of this case, and any required fee for such an extension is to be charged to Deposit Account No. 04-1061.

Respectfully submitted,

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